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Investigating mechanisms connected to the warming signal in Greenland ice cores using model simulations

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Ice cores allow us to investigate the past abrupt climate changes. The improved spatial distribution of ice core locations in recent years provide a deeper insight into the glacial conditions and the characteristics of Dansgard-Oeschger (D-O) events, as recorded from the Greenland Ice Sheet. In this study the atmospheric climate conditions during D-O events are explored. Using a set of coupled The Norwegian Earth System Model (NorESM) model simulations that simulate the stadial and interstadial parts of D-O-events, it is investigated how changes in sea ice and ocean conditions influence the Greenland climate conditions. A particular focus is on the atmospheric dynamics relevant for Greenland conditions, such as the jet stream. The seasonal and interannual variability in the simulations are explored and compared to information from ice core records in order to benchmark the model simulations. The use of model simulations makes it possible to explore the dynamics of the D-O events, as recorded by Greenland ice cores, in greater detail.